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International organizations, advocacy coalitions, and domestication of global norms: Debates on climate change in Canada, the US, Brazil, and India

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ABSTRACT

National climate policies are shaped by international organizations (IOs) and global norms. Drawing from World Society Theory and the Advocacy Coalition Framework (ACF), we develop two related arguments: (1) one way in which IOs can influence national climate policy is through their engagement in mass-mediated national policy debates and (2) national organizations involved in the policy process may form advocacy coalitions to support or oppose the norms promoted by IOs. To examine the role of IOs in national policy debates and the coalitions that support and oppose them, we use discourse network analysis (DNA) on over 3500 statements in 11 newspapers in Canada, the United States (US), Brazil, and India. We find that in the high-income countries that are high per capita emitters (Canada and the US), IOs are less central in the policy debates and the discourse network is strongly clustered into competing advocacy coalitions. In the lower-income countries that are low per capita emitters (Brazil and India), IOs are more central and the discourse network is less clustered. Relating these findings to earlier research, we suggest that the differences we find between high and low per capita emitters may be to some extent generalizable to the relevant country groups beyond our four cases.

1. Introduction

National climate policies are shaped by international organizations (IOs), treaties, and the policy norms that these promote (Meyer et al., 1997; Schofer and Hironaka, 2005; Hironaka, 2014). The relevant actors include intergovernmental organizations, such as the Intergovernmental Panel on Climate Change (IPCC), and transnational non-governmental organizations (NGOs), such as Greenpeace, as well as treaties, such as the United Nations Framework Convention on Climate Change (UNFCCC). The promoted norms include the scientific consensus on anthropogenic climate change, principles such as common but differentiated responsibilities (CBDR), and the obligation to define national emission reduction targets and submit them to the United Nations (UN).

However, countries differ substantially in how they have embraced climate policy norms promoted by IOs. Much research has investigated climate change politics in the international arena (e.g., Roberts and Parks, 2007; Roberts, 2011; Stoett, 2012), but less comparative work focuses on understanding national differences in climate change policymaking (Purdon, 2015) and the role of IOs in different political economic contexts.

One way in which IOs can influence national policymaking is by engaging in public policy debates in different countries. IOs publish reports, such as the IPCC assessment reports, organize public events, such as the UN Conference of the Parties (COP) meetings that become global media events, and issue recommendations for national governments. These reports, events, and recommendations are often followed by approval or resistance by national-level organizations active in the

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climate policy debate, resulting in political disputes in arenas such as the national mass media over the arguments put forth by IOs Fig. 1–4.

In this paper, we address two questions: (a) how central IOs are in mass-mediated national policy debates on climate change in different countries and (b) what kinds of advocacy coalitions support and oppose the global norms promoted by IOs. Our method, discourse network analysis (DNA), enables us to analyze these debates from a network perspective and assess these two issues.

Our theoretical framework combines the advocacy coalition framework (ACF) with the idea of domestication of global norms developed in the world society literature. The world society literature directs our attention to the role of IOs in national policy processes, and the concept of domestication highlights that various organizations at the national level may seek to ally with or oppose IOs and the norms they promote (Alasuutari and Qadir, 2014; Alasuutari, 2016). The ACF offers systematic tools to analyze alliances and opposition, by focusing on how organizations group into coalitions based on shared value priorities and policy preferences (Sabatier and Jenkins-Smith, 1988).

Our empirical material consists of more than 3500 statements in the most widely read newspapers in Canada, the United States (US), Brazil, and India. In terms of absolute country-level emissions, all four countries are major emitters due to their sheer size, which renders them important actors in global climate change politics. In terms of per capita emissions, however, the countries form two distinct groups. According to the latest World Bank data (2014), India's emissions per capita are a mere 1.7 tons, closely followed by Brazil at 2.6 tons. Canada (15.1 tons per capita) and the US (16.5 tons per capita), in contrast, are among the world's highest emitters. Per capita emissions are closely linked with per capita income levels, with middle-income India and Brazil emitting considerably less than high-income Canada and the US. Thus, this set of four countries enables us to compare differences in national policy debates between high- and middle-income countries. This is relevant for two reasons. First, existing research has shown that IOs tend to play stronger roles in policy processes in lower-income countries than in high-income ones (Frank et al., 2007; Longhofer and Schofer, 2010). Second, the global norms concerning these two sets of countries are different: more cuts are required from high-income countries (Annex I countries under the Kyoto Protocol) than middle- and low-income ones (non-AnnexI countries). This may contribute to differences between the two country groups in the levels of opposition faced by IOs.

We find that IOs are less central in the debates in the high-income countries that are high per capita emitters (the US and Canada), where they are embedded in a conflictual discourse network that is strongly clustered into competing advocacy coalitions supporting or opposing global norms. In the middle-income countries that are low per capita emitters (Brazil and India), IOs are more central and the discourse networks much less conflictual, with less opposition to global norms on climate change.

2. Analytical framework & research questions

Our analytical framework combines the ACF literature with the world society literature on the domestication of global norms. The world society literature focuses on the role of IOs in national policy debates and highlights that domestic actors may contest or defend the norms promoted by IOs. The ACF literature provides the tools to analyze how the domestic organizations that contest and defend the norms promoted by IOs form into coalitions—which the world society literature has not addressed. Thus, the two theoretical literature streams, combined into a single analytical framework, enable us to delineate the role of IOs and their supporters and opponents in national policy debates that is not possible with either theory alone.

The world society literature has shown that IOs are important drivers of environmental policymaking, including climate change policy, at the national level. The literature has analyzed environmentalism as a set of global cultural norms, embedded in a global environmental regime composed of interstate institutions and treaties, institutionalized environmental sciences, and international civil society organizations (Meyer et al., 1997; Schofer and Hironaka, 2005; Hironaka, 2014). The extent to which a country adheres to these norms is affected by its degree of integration in the world society: the more international treaties a country participates in and the more international NGOs are present, for instance, the more likely a country is to enact ambitious environmental policies (Schofer and Hironaka, 2005).

We argue that one way in which IOs can influence national policymaking is through their role in policy debates in national mass media. Research on media coverage of CC has shown that this is particularly true of the climate change debate, where the publication of the IPCC fourth assessment report in 2007 and the UN COP 15 conference in 2009 have been important drivers of public debate across the world (Schäfer et al., 2014). This observation leads to the following question:

RQ1: How central are IOs in mass-mediated national climate policy debates in different countries?

While the world society literature has demonstrated that countries do indeed follow global cultural norms and implement global organizational models, it has rarely encompassed how global norms are often subject to heated debates, where national organizations both defend and oppose these norms. Noting this gap, Alasuutari and Qadir (2014) suggested that more research should address what they term "domestication of global norms." The idea is that global policy norms do not simply diffuse but that national political actors have a paramount role in the process as these global ideas are "made part of national political discourse and practices" (Alasuutari, 2016, p. 21). When a global policy problem becomes a salient issue for national policymakers, domestic organizations compete to frame it in political arenas, including the mass media (Alasuutari, 2016). This focus on framing has produced interesting insights into how global norms enter national contexts. We add to the domestication perspective by drawing on the ACF (Sabatier and Jenkins-Smith, 1998; Jenkins-Smith et al., 2014), which argues that organizations aiming to influence policymaking in a particular policy domain form competing advocacy coalitions based on shared core beliefs. These include value priorities, elemental causes, and preferred solutions (Jenkins-Smith et al., 2014).

A limitation of the ACF literature has long been that the framework has largely been applied to policy processes at the national or subnational level. Cross-country comparative applications are rare (see, however, Ingold et al., 2016). Furthermore, ACF studies focusing on national policy subsystems do not usually acknowledge the role of IOs in advocacy coalitions (two exceptions are Litfin, 2000 and Sewell, 2005). The ACF should more often incorporate the external context of policy subsystems (Henry et al., 2014).

Thus, we contribute to the world society literature on the domestication of global norms by examining the role of advocacy coalitions in the domestication process and to the ACF by engaging in a comparative study on the role of IOs in advocacy coalitions. We argue that the relative strength of coalitions that defend and oppose global policy norms is an important factor determining what kind of national policy response results from the domestication process. Thus, our second research question is the following:

RQ2: What kinds of advocacy coalitions defend the global norms on climate change in the mass-mediated policy debates in different countries, and what kinds of coalitions oppose these norms?

It is worth noting that this paper focuses on actors—the positions of IOs and national organizations in the discourse networks. Therefore, less attention is paid to the content of the specific claims. In Table 3 in the material and methods section, we do present the most contentious and consensual issues debated in each country, but this is mostly to render transparent our coding scheme and the set of claims upon which our network analysis relies. In the analysis section, we discuss the content of the claims only to the extent that it is necessary for understanding how actors group into coalitions in the discourse network. Why certain issues become the foci of contestation or consensus in each

country is deferred to future studies.

3. Materials and methods

We compare public climate policy debates in four countries: Canada, the US, Brazil, and India. The first two are high-income countries with high per capita emissions, their administrative, political, and economic institutions have been developed and consolidated over long periods, and attempts to bring about more ambitious climate policies and the related global norms have faced resistance (MacDonald, 2008; Rabe, 2010). Such resistance even extends to climate denialism, advocated by an organized climate change countermovement (McCright and Dunlap, 2003; Dunlap and McCright, 2015; Farrell, 2015). Brazil and India belong to the increasingly influential BASIC countries (Hallding et al., 2013). As large countries, they are both major emitters, but emissions per capita are low. Both countries are strongly committed to the principle of CBDR (Lahsen, 2004; Dubash, 2009). CBDR is the main moral principle inscribed in the Kyoto Protocol: all countries share a common responsibility to mitigate greenhouse gas emissions, but high-income countries carry the major burden of emission reductions (Honkonen, 2009). In Brazil and India, there has also been little questioning of the scientific consensus on anthropogenic climate change (Painter and Ashe, 2012).

Our data consists of newspaper articles from the years 2007 and 2008, the most intense period of climate change debate in all four countries to date. During this period, IOs were exceptionally active on climate change, yielding much debate and news material for our investigation. In 2007, the IPCC released its fourth assessment report and received the Nobel Peace Prize jointly with Al Gore. Media coverage of climate change increased globally, peaking during the fifteenth COP in Copenhagen in 2009 (Schmidt et al., 2013; Broadbent and Sonnett, 2016). Domestic climate legislation also progressed in all four countries. The US Congress discussed a federal cap and trade system (Rabe, 2010). Canada debated a federal carbon tax after the province of British Columbia introduced its own carbon tax in 2008 (Sodero, 2011). Brazil introduced its voluntary climate plan in 2008 (Viola, 2013), and the business sector and some Amazon-based politicians began to demand more ambitious national commitments (Hochstetler and Viola, 2012). India's civil society started actively engaging in climate change activities (Ylä-Anttila and Swarnakar, 2017), and India established a Prime Minister's Council on Climate Change in 2007 (PMCCC). Intense political debate on climate change thus marked these countries during this key period (Broadbent and Sonnett, 2016).

Our empirical data consists of articles from 11 newspapers (Table 1) selected for their prominence (high circulation) and political diversity, ideally representing different ends of the politics spectrum in each country. Thus, they can be expected to represent the climate policy debate without excessive political bias.

This study is part of the international Comparing Climate Change Policy Networks (COMPON) research project covering 20 countries. Our data collection and coding follow the common research protocol of the project. We used the Factiva database to retrieve all articles during the chosen period that included the terms "global warming" or "climate change." We then manually removed those articles that did not primarily deal with climate politics or anthropogenic climate change. For final coding, we took a random sample of all articles, with the sampling protocol allowing some variation according to the resources of the different national teams. The total number of articles coded was 435 of 2263 in Brazil, 603 of 3015 in Canada, 283 of 1206 in India, and 648 of 1221 in the US. The Brazilian team used a different procedure, searching all the articles (N = 2263) using Portuguese words commonly used when citing persons: informed ("informou"), said/told ("disse", "diz", "afirmou") and "according to" ("segundo"). This resulted in 435 articles. The Brazilian team further verified whether the keyword choices resulted in the exclusion of important statements by searching the full set of articles for all statements made by representatives of three different government ministries to identify expressed positions independent of the appearance of the keywords. Their procedure was able to identify very close to 100% of all the relevant statements.

We use DNA (Leifeld, 2010) to discover which actors engage in climate policy debates in the media and how they group into advocacy coalitions based on these beliefs. A growing number of studies argue that discourse coalitions in the public sphere have a crucial impact on policy processes (e.g., Bulkeley, 2000; Leifeld and Haunss, 2012; Rennkamp et al., 2017). As the media is a significant arena for the politics and framing of climate change (Boykoff, 2011), ACF scholars have increasingly used media material to trace policy advocacy coalitions (e.g., Leifeld, 2013; Lodge and Matus, 2014; Kukkonen et al., 2017).

The unit of analysis in DNA is a statement (Leifeld, 2010). We coded direct statements from organizations and statements that were paraphrased by the journalist. We coded three different attributes for each statement: 1) *the organization* making the statement, 2) the *belief category,* derived inductively from the data, into which the statement falls, and representing a policy core belief in the ACF, and 3) *agreement* or *disagreement* with the belief category.

As Table 2 shows, the amount of media coverage of climate change varies between countries, as does the number of statements from organizations within the articles and the number of coded belief categories. This is because the coding protocol allowed country teams to inductively identify the categories, and some opted for a more detailed list of codes. To make the categories comparable across countries, we combined categories in those countries where there were a substantial number. For example, in Canada, we combined the six categories "climate science is settled," "CC is caused by humans," "claims concerning CC are not exaggerated," "GCC is real," "greenhouse gases cause global warming," and "IPCC predictions are overly conservative" into the single category "scientific claims that greenhouse gases contribute to CC are valid."

From the final list of belief categories, we selected the three most debated *contentious* beliefs and the three most debated *consensual* beliefs (Table 3). In each country, these six belief categories encompassed approximately 60 percent of all statements, suggesting that they adequately represent the main foci of media debate in each country. We used the contentious beliefs to discern competing advocacy coalitions and all six beliefs to analyze the centrality of IOs in the overall debate.

We used the Visone software to (a) analyze the degree centrality of IOs in the discourse network, (b) create visual representations of the data, and c) analyze the clustering of the networks into competing advocacy coalitions using the Louvain method of community detection, which gives a modularity score in the range of [−0.5–1]. Generally, values greater than 0.4 are interpreted to mean that meaningful subgroups exist in a network (Blondel et al., 2008).

Table 1
Newspapers used in data collection in each country.

The US: The Wall Street Journal, USA Today, and The New York Times
Canada: National Post, The Globe and Mail
Brazil: Folha de São Paulo, O Estado de São Paulo, Valor Econômico
India: The Times of India, The Hindu, The Indian Express

Table 2
Number of articles, statements, organizations, and belief categories in each country.

	Articles	Statements	Organizations	Belief categories	Reduced belief categories
USA	648	1410	333	28	28
CAN	603	1202	278	269	49
BRA	435	639	192	69	50
IND	283	472	167	83	43

Table 3
Most contentious and consensual beliefs in each country during 2007–08, agree/disagree (%).

	Contention	Consensus
Canada	Scientific claims that greenhouse gases contribute to climate change are valid, 48/52 N = 83	Global warming causes negative environmental impacts, 91/9 N = 117
	Addressing climate change is harmful for the economy, 46/54 N = 100	Carbon tax is an appropriate way for Canada to reduce emissions, 82/18 N = 65
	Canada should start reducing emissions regardless of what developing countries do, 40/60 N = 57	Federal government is taking meaningful action on climate change, 24/76 N = 159
US	Scientific claims that greenhouse gases contribute to climate change are valid, 58/42 N = 106	Cap and trade is the legislative approach the US should take in addressing climate change, 80/20 N = 315
	Regulating emissions to protect the environment is more important than protecting the economy, 37/63 N = 97	Increasing alternative energy is the approach the US should take in addressing CC, 89/11 N = 71
	Industry should be regulated in the US to decrease greenhouse gas emissions that contribute to climate change, 37/63 N = 67	Higher automobile efficiency standards are necessary in the US to reduce greenhouse gas emissions that cause climate change, 73/27 N = 111
Brazil	Biofuels are an appropriate way to mitigate global warming, 57/43 N = 134	Brazil should reduce its deforestation to achieve emissions reduction, 93/7 N = 30
	Current Brazilian actions to reduce climate change are strong and sufficient, 35/65 N = 79	Deforestation should be avoided through a financial compensatory mechanism, 85/15 N = 54
	Nuclear energy is a viable and desirable alternative to fossil fuels, 46/54 N = 37	Developed and developing countries should have different responsibilities in the climate regime, 70/30 N = 64
India	Responsibility of climate change is common but differentiated, 68/32 N = 69	Alternative energy is a solution to climate change, 100/0 N = 33
		Environmental change is evidence for climate change, 96/4 N = 137
		Climate change is real and of anthropogenic origin, 95/5 N = 41

4. Results

We began by examining the centrality of IOs in the four national policy debates (RQ1). We analyzed the degree centrality (%) of international NGOs and intergovernmental organizations in the discourse network. The higher the degree centrality of an actor, the more ties it has to other actors in the discourse network (the more statements an actor makes that attract agreement from other actors in the network, the more central that actor becomes). We find that IOs are not central actors in the policy debate in Canada and the US (Table 4); the most central actors are national ones, especially political parties and states/provinces. Universities, national NGOs, and foreign governments are more central in the Canadian case, but energy companies are more central in the US. The only IO in the top 15 list in either country is the IPCC.

In Brazil and India, IOs occupy much more central positions in the discourse networks. The lists of the top 15 most central organizations include four IOs in both countries (Table 5). In Brazil, the UN is the fourth most central, followed by Greenpeace (eighth), the IPCC (tenth), and WWF International (eleventh). In India, the IPCC is the most central, followed by the UN (third), Greenpeace (eighth), and the World Bank (fourteenth). The high degree of international influence on the debate in India is also visible in the fact that foreign governments are highly central: the UK is fourth, China tenth, and the US eleventh. Universities are central domestic actors in both countries. Government actors are more central in Brazil, but states are more central in India.

Table 4
Degree centrality (%) of top 15 organizations in the US and Canadian discourse network.

US	Degree (%)	Canada	Degree (%)
Democratic Party	17.052	Liberal Party	7.991
Republican Party	12.086	Pembina Institute	3.981
California	6.898	Canadian Government	3.294
Independent Party	3.026	Simon Frasier University	3.204
Supreme Court	2.512	NDP	3.166
US Government	2.506	University of Toronto	2.636
Duke Energy Corp.	2.395	David Suzuki Foundation	2.401
DuPont	2.385	University of Victoria	2.348
New York	2.215	NASA	2.155
General Electric	2.120	British Columbia	2.095
New Jersey	1.594	**IPCC**	1.624
Connecticut	1.524	Australia	1.480
IPCC	1.474	Natural Resources Canada	1.374
Massachusetts	1.380	Green Party	1.355
Vermont	1.335	US	1.349

Table 5
Degree centrality (%) of top 15 organizations in the Brazilian and Indian discourse network.

Brazil	Degree (%)	India	Degree (%)
President of Brazil	14.458	**IPCC**	12.182
Ministry of Foreign Affairs	10.734	Government of India	9.484
Ministry of the Environment	8.911	**United Nations**	5.803
United Nations	5.239	Tamilnadu	3.934
Brazilian Forum on Climate Change	3.595	UK	3.094
University of Rio de Janeiro	3.441	The Energy and Resources Institute (TERI)	2.899
Former Brazilian Minister of Agriculture	3.082	Indian Institute of Science	2.862
National Institute for Space Research	2.851	**Greenpeace India**	2.123
Greenpeace Brazil	2.851	Himachal Pradesh	2.086
Brazilian Government	2.465	Exnora International	1.653
IPCC	2.414	China	1.526
WWF International	2.029	US	1.341
Amazon Environmental Research Institute	1.977	Indian Meteorological Department	1.310
University of São Paolo	1.644	**World Bank**	1.288
Brazilian Sugarcane Industry Association (UNICA)	1.644	University of Agricultural Sciences	1.288

Turning to our second research question, we analyzed the formation of competing advocacy coalitions that variously defend or oppose global norms promoted by IOs (Figs. 1–4). We examined the co-occurrence of organizations in the discourse network based on the three contentious beliefs. There is a tie between actors if they both agree or both disagree on the same belief. We found that in Canada and the US, where IOs were less central, the discourse network is more strongly clustered into competing coalitions, some defending and others opposing the norms promoted by these organizations. In Brazil and India, where IOs were more central, such resistance is mostly absent.

The Louvain modularity score measuring the clustering of the network is 0.422 in Canada and 0.492 in the US, well above the threshold of 0.4 that usually indicates a meaningful degree of clustering in a network (Blondel et al., 2008). We found five competing coalitions in Canada (Fig. 1) and three in the US (Fig. 2). In Canada, these are 1) the economy coalition that believes addressing climate change is harmful for the economy, 2) the environment coalition that does not believe that addressing climate change will harm the economy, 3) the skeptic and

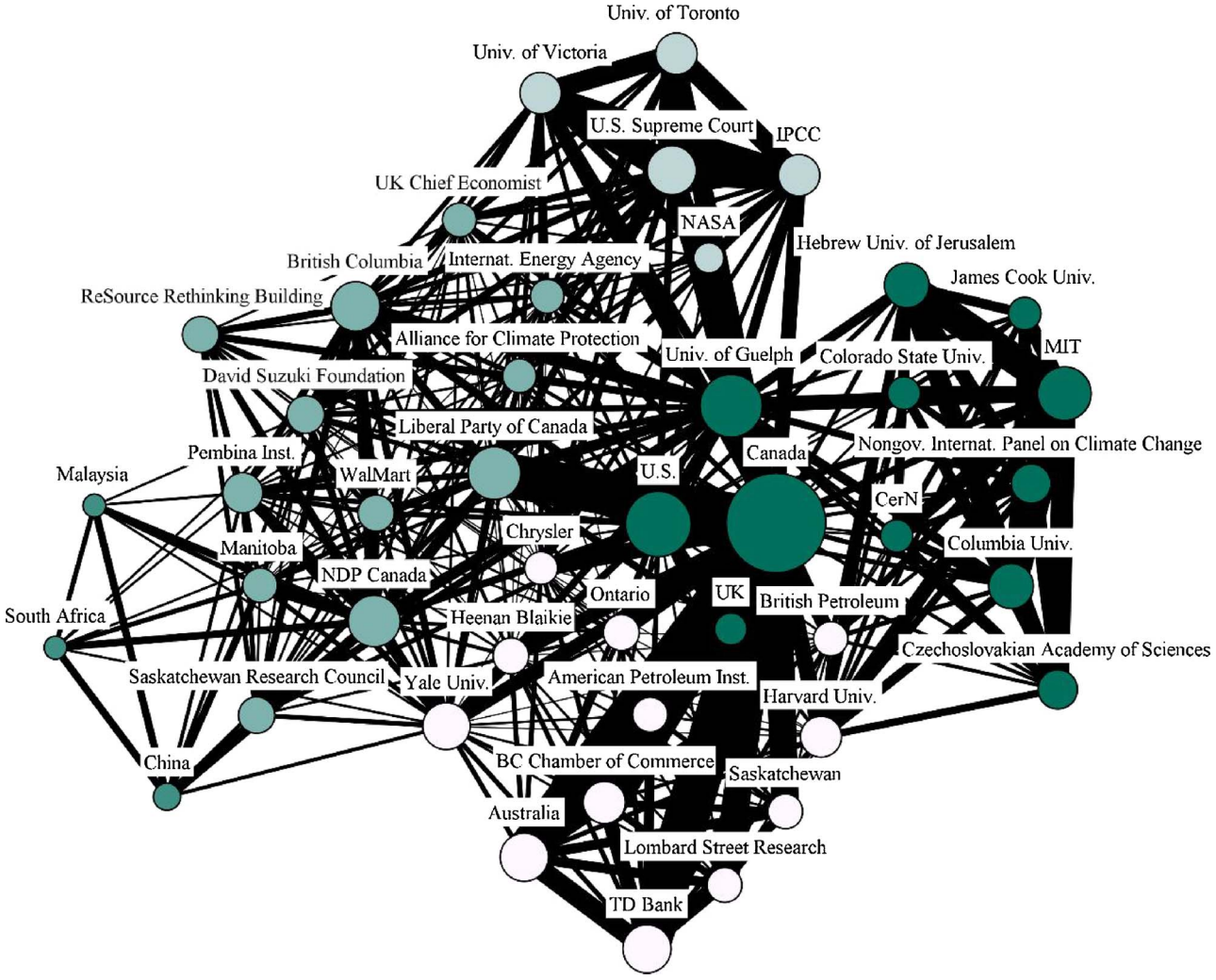

Fig. 1. Actor co-occurrence network based on three most contentious beliefs in the Canadian news media during 2007–08; threshold is more than one statement.

anti-CBDR coalition that believes that scientific claims about anthropogenic climate change are not valid and opposes the CBDR, 4) the science coalition that believes in the validity of scientific claims, and 5) the CBDR coalition that supports the CBDR. In the US, these coalitions are 1) the economy and skeptic coalition that believes economic growth is more important than environmental protection and that climate science is not valid and opposes industrial regulation, 2) the environment coalition that believes that environmental protection is more important than economic growth and that industry should be regulated, and 3) the science coalition that believes in the validity of climate science.

In both countries, the coalitions that oppose the global norms consist mainly of national organizations. In the US, they include organizations from the countermovement as well as business lobby groups, national industry associations, individual companies from the energy and business sector, and the Republican Party. Consistent with earlier research into US climate politics (Fisher et al., 2013; Painter and Ashe, 2012), the US debate is more ideologically charged than in the other three countries, reflected in discourses opposing climate legislation by invoking human nature and a limited role for government. In Canada, the organizations opposing global norms based on economic arguments include the same types of actors. However, there is less of an organized countermovement and open denial of climate science than in the US.

IOs belong to coalitions that defend the global norms. In both countries, organizations such as the IPCC belong to the science coalition, which defends the scientific consensus of anthropogenic climate change. Others, such as the International Energy Agency (IEA), World Bank, Greenpeace (in Canada), and Oxfam (in the US), belong to the environment coalition that argues for the need to reduce emissions and protect the environment. Aligning with these IOs, in both countries, are national NGOs, individual corporations, universities, and opposition political parties (the Democratic Party in the US and the New Democratic Party (NDP), Liberal Party, and Green Party in Canada). In the US, some states are also visible actors in the environment coalition.

In Brazil and India, where IOs are much more central, there is also much less opposition toward the global norms they promote (Figs. 3 and 4). The discourse networks are less clustered than in Canada and the US. The Louvain modularity score is 0.318 for Brazil and 0.199 for India. Both are below the 0.4 threshold, indicating no clear coalitions, and the debate is less polarized than in Canada and the US. In Brazil, conflicts mainly center on preferred policy instruments for tackling climate change and the adequacy of Brazilian actions. Much of the debate concerns biofuels. Domestic organizations, such as Brazilian government actors, industry associations, research institutes, and corporations, defend Brazilian biofuels as a positive mitigation option, with dissenting perspectives expressed mainly by international actors. The desirability of nuclear energy, by contrast, is subject to more dissent among domestic organizations, such as research institutes, the Ministry for the Environment, and national NGOs. IOs such as the EU, the UN, WWF, and Greenpeace oppose the use of nuclear energy and biofuels, raising concerns over possible detrimental environmental and social consequences. This debate, however, is not sufficiently polarized

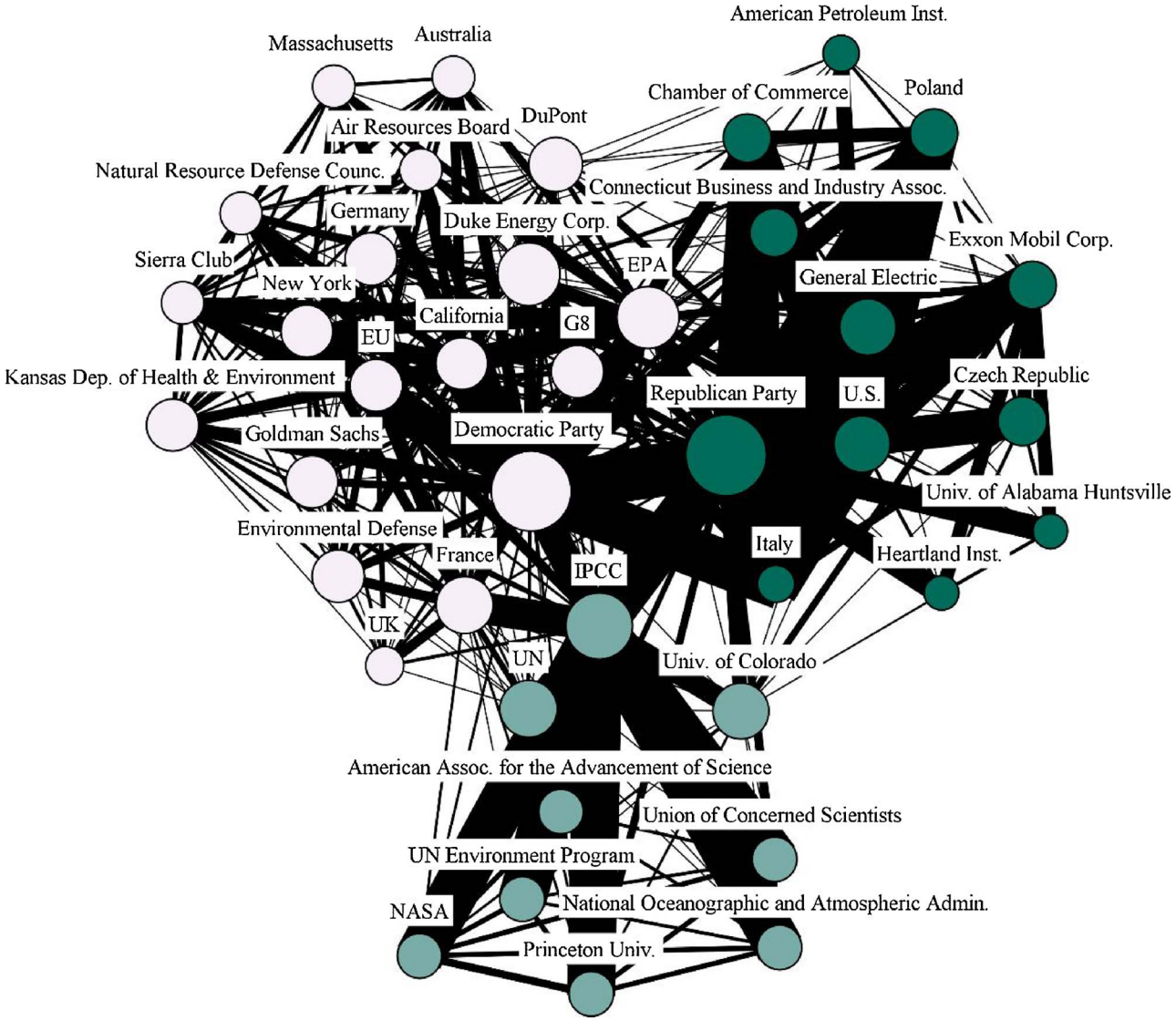

Fig. 2. Actor co-occurrence network based on three most contentious beliefs in the US news media during 2007–08; threshold is more than one statement.

to generate coalitions such as those present in the Canadian and US debates. In India, national discussions are only divisive in terms of the CBDR. Domestic actors align to support the CBDR, joined by IOs that include the UN and the IPCC. The few organizations opposing CBDR include some foreign Annex 1 governments and NGOs ().

Discussion & conclusions

We developed a framework synthesizing domestication theory and ACF to analyze the centrality of IOs and the opposition or support that they face from coalitions of national organizations in mass-mediated climate policy debates in Canada, the US, Brazil, and India. We found that IOs are less central in the high-income countries that are high per emitters (Canada and the US), where the discourse network is strongly clustered into competing coalitions that variously defend and oppose global norms. In the middle-income countries that are low per capita emitters (Brazil and India), the pattern is reversed: the higher centrality of IOs is accompanied by less clustering of the discourse network and lower opposition to global norms.

We address two interrelated questions: (1) how these findings relate to earlier literature on world society and IOs and (2) to what extent they are generalizable to countries beyond the four that we have studied here.

First, we found that opposition to IOs is low in the countries where they are more central and vice versa. The finding that IOs are more central in lower-income countries of the southern hemisphere is consistent with earlier literature on the world society and IOs. World society scholars have demonstrated that IOs and global cultural norms tend to have stronger effects on low-income than on high-income countries (Frank et al., 2007; Longhofer and Schofer, 2010). Other scholars investigating the role of IOs in developing countries have pointed out that the interpenetration of IOs has a long and strong history in countries like Brazil and India, often taking the form of development aid. Development workers from the Global North have perceived it as their role to “teach” development norms to recipients in the Global South (Finnemore, 1993; Finnemore and Sikkink 1998). These practices also seem to change very slowly in response to shifts in global power distribution (McArthur and Werker, 2016). This is a likely explanation for our finding that IOs occupy more central positions in the policy debates in Brazil and India. The finding that it is in these same countries where IOs face less resistance from national-level coalitions, in turn, is likely explained by the fact that global norms for emission reduction demand less from the lower-income (non-Annex1) countries. Even though the Paris Agreement does not contain a binding formulation of the CBDR principle as in its predecessor the Kyoto Protocol (which defined the global norms in force during the period of our data

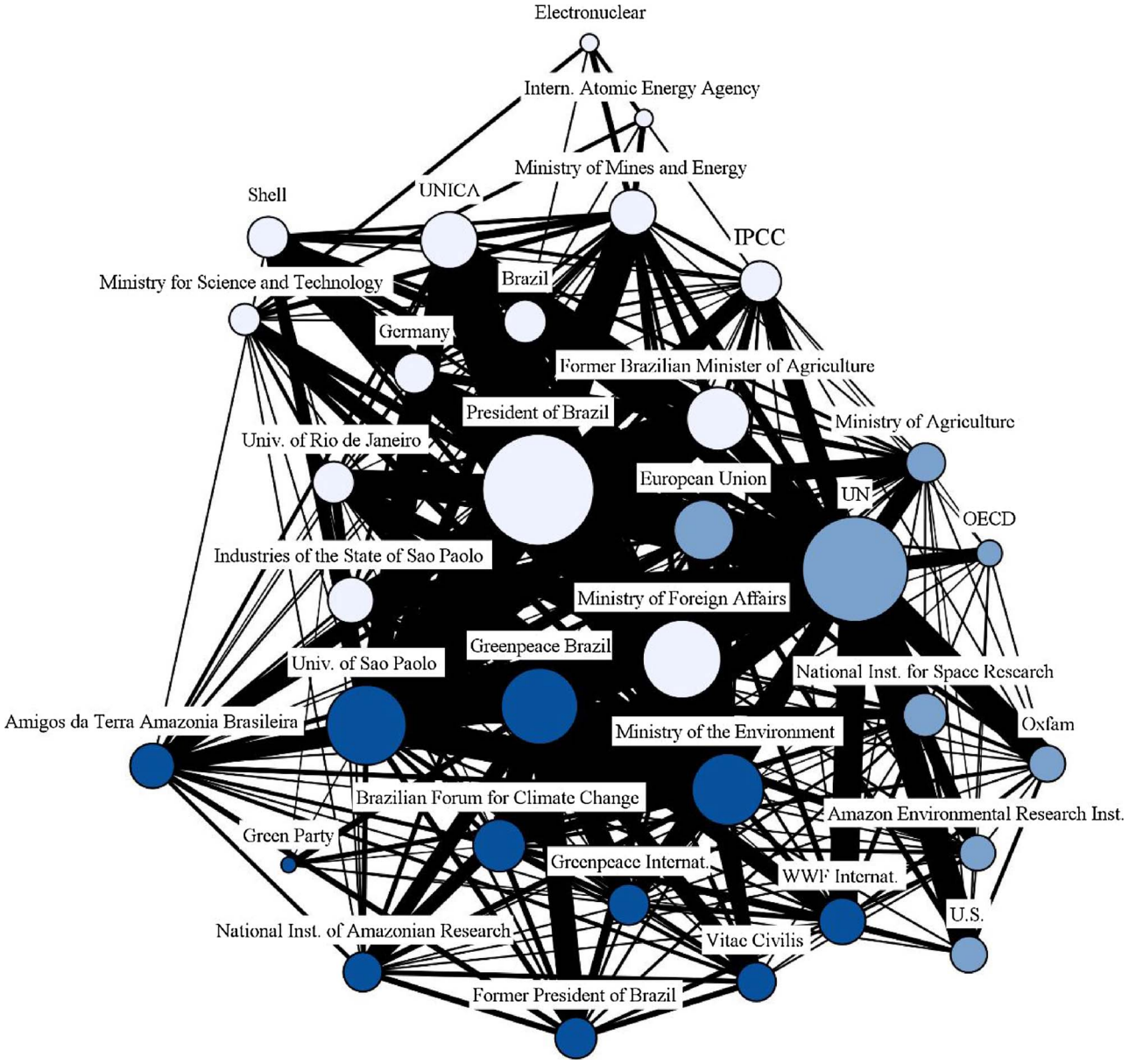

Fig. 3. Actor co-occurrence network based on three most contentious beliefs in the Brazilian news media during 2007–08; threshold is more than one statement.

collection), there are still more strategic advantages in aligning with IOs and global norms in Brazil and India.

In addition, our results deviate from those of Alasuutari (2016), who examined the number of references made to IOs and international comparisons in parliamentary debates in six different countries. He found that IOs and international comparisons are markedly less present in US debates than in any of the other five countries he studied, including Canada. In our study, Canada and the US resemble one another in their relation to global institutions and norms, whereas Alasuutari's study indicated that they were significantly different. This difference is likely explained by Alasuutari's study not including climate policy, which is a particularly globalized policy field that mobilized domestic opposition in both Canada and the US, demonstrated by our analysis.

Second, our findings might be generalizable, at least to some extent, to differences between high-emitting, high-income countries and low-emitting, lower-income countries beyond the four cases analyzed here. Further research comparing a larger number of countries would be necessary to test this possibility. Such research should also investigate factors beyond the high per capita emitter/low per capita emitter divide that shape national climate change debates, such as political structures, structures of media institutions, relative dependence on fossil fuel industries, and strength of civil society. Further research should also explore the role of IOs and the opposition or support they face in countries with high income levels but low emission levels. Further studies into the differences within the country groups, focusing on why certain topics become conflictual and others consensual, would also be of value.

Our data is cross sectional, so we cannot establish whether there is a causal relationship between our two findings or, if so, the direction of causality. It may be that pre-existing support for IOs shapes national debates on climate change or that some characteristics of pre-existing national debates creates opposition to IOs. A study with a longitudinal data set would shed light on these issues.

Finally, it is worth emphasizing that our results are based on analyses of media representations of the policy debate. The media, as a public sphere, exerts power through gatekeeping, as journalists often determine the framing and use of sources (Alasuutari et al., 2013), albeit in a context of institutional influences and constraints (Boykoff and Yulsman, 2013). It is plausible that the "mediated policy networks" (Stoddart et al., 2017a, p. 387) that we studied reflect policy networks in the political sphere to some extent, but centrality in media debates

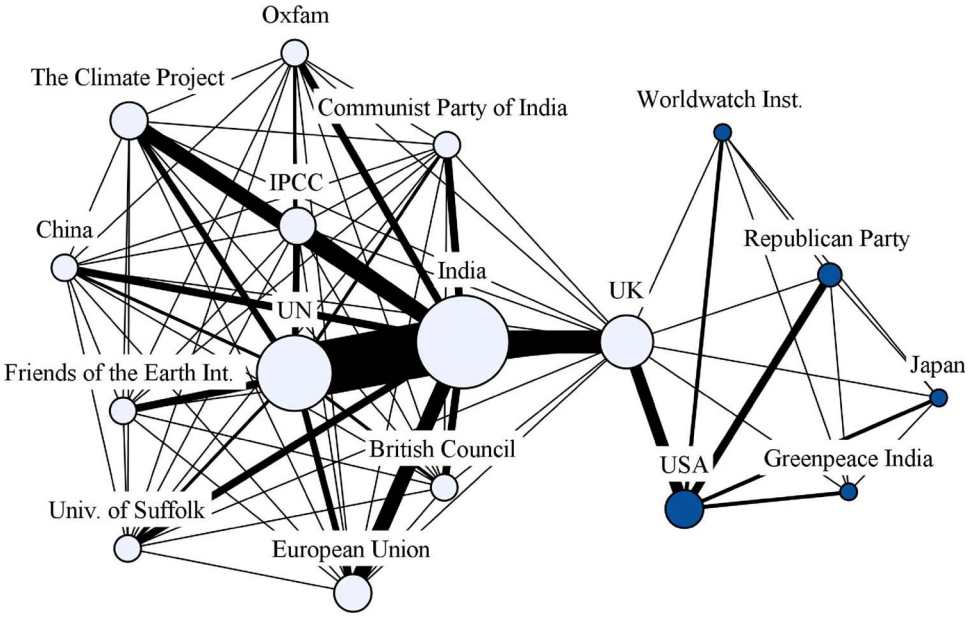

Fig. 4. Actor co-occurrence network based on one contentious belief in the Indian news media during 2007–08; threshold is more than one statement.

does not automatically translate into power in the political sphere (Stoddart et al., 2017a, 2017b). Studies that employ material beyond media coverage of the policy debates are needed to further support our ideas on the role of IOs in national policy debates.

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References

National Policy-making: Domestication of Global Trends. In: Alasuutari, P., Qadir, A. (Eds.), Routledge, London.
Alasuutari, P., Qadir, A., Creutz, K., 2013. The domestication of foreign news: news stories related to the 2011 Egyptian revolution in British, Finnish and Pakistani newspapers Media. C. Soc. 35 (6), 692–712.
Alasuutari, P., 2016. The Synchronization of National Policies: Ethnography of the Global Tribe of Moderns. Routledge, New York.
Blondel, V.D., Guillaume, J.-L., Lambiotte, R., Lefebvre, E., 2008. Fast unfolding of communities in large networks. J. Stat. Mech: Theory Exp. 10, 10008.
Boykoff, M., Yulsman, T., 2013. Political economy, media, and climate change: sinews of modern life. Wiley Interdiscip. Rev. Clim. Change 4 (5), 359–371.
Boykoff, M., 2011. Who speaks for the climate? Making sense of media reporting on climate change. Cambridge University Press, New York.
Broadbent, J., Sonnett, J., et al., 2016. Conflicting climate change frames in the global field of media discourse. Socius: Sociol. Res. Dyn. World 2, 1–13 35 co-authors.
Bulkeley, H., 2000. Discourse coalitions and the Australian climate change policy network. Environ. Plann. C: Polit. Space 18 (6), 727–748.
Dubash, N.K., 2009. Copenhagen : climate of mistrust. Econ. Polit. Weekly 44 (52), 8–11.
Dunlap, R., McCright, A., 2015. Countering climate change: the denial countermovement. In: Dunlap, R., Brulle, R. (Eds.), Climate Change and Society: Sociological Perspectives. Oxford University Press, Oxford.
Farrell, J., 2015. Network structure and influence of the climate change counter-movement. Nat. Clim. Change 6 (4), 370–374.
Finnemore, M., Sikkink, K., 1998. International norm dynamics and political change. Int. Org. 52 (4), 887–917.
Finnemore, M., 1993. International organizations as teachers of norms: the United Nations educational, scientific, and cultural organization and science policy. Int. Org. 47 (4), 564–597.
Fisher, D., Leifeld, P., Iwaki, Y., 2013. Mapping the ideological networks of American climate politics. Clim. Change 116, 523–545.
Frank, D., Longhofer, W., Schofer, E., 2007. World society, NGOs and environmental policy reform in Asia. Int. J. Comp. Sociol. 48 (4–5), 275–295.
Hallding, K., Jürisoo, M., Carson, M., Atteridge, A., 2013. Rising powers: the evolving role of BASIC countries. Climate Policy 13 (5), 608–631.
Henry, A.D., Ingold, K., Nohrstedt, D., Weible, C., 2014. Policy change in comparative contexts: applying the advocacy coalition framework outside of Western Europe and North America. J. Comp. Policy Anal.: Res. Prac. 16 (4), 299–312.
Hironaka, A., 2014. Greening the Globe. World Society and Environmental Change. Cambridge University Press, New York.
Hochstetler, K., Viola, E., 2012. Brazil and the politics of climate change: beyond the global commons. Environ. Polit. 21 (5), 753–771.
Honkonen, T., 2009. The principle of common but differentiated responsibility in post-2012 climate negotiations. Rev. Eur. Comp. Int. Environ. Law 18 (3), 257–267.
Ingold, K., Fischer, M., Cairney, P., 2016. Drivers for policy agreement in nascent subsystems: an application of the advocacy coalition framework to fracking policy in Switzerland and the UK. Policy Stud. J. 45 (3), 442–463.
Jenkins-Smith, H., Nohrstedt, D., Weible, C., Sabatier, P., 2014. The advocacy coalition framework: foundations, evolution, and ongoing research. In: Sabatier, P., Weible, C. (Eds.), Theories of the Policy Process. Westview Press Boulder CO, pp. 183–224.
Kukkonen, A., Ylä-Anttila, T., Broadbent, J., 2017. Advocacy coalitions, beliefs and climate change policy in the United States. Public Adm. 95 (3), 713–729.
Lahsen, M., 2004. Transnational locals: brazilian experiences of the climate regime. In: Jasanoff, S., Long, M. (Eds.), Earthly Politics: Local and Global in Environmental Governance. MIT Press, Cambridge MA, pp. 151–172.
Leifeld, P., Haunss, S., 2012. Political discourse networks and the conflict over software patents in Europe. Eur. J. Polit. Res. 51 (3), 382–409.
Leifeld, P., 2010. Discourse Network Analyzer (DNA) manual. Available online at: http://www.philipleifeld.de/discourse-network-analyzer-dna/manual/ .
Leifeld, P., 2013. Reconceptualizing major policy change in the advocacy coalition framework: a discourse network analysis of German pension politics. Policy Stud. J. 41 (1), 169–198.
Litfin, K., 2000. Advocacy coalitions along the domestic-foreign frontier: globalization and Canadian climate change policy. Policy Stud. J. 28, 236–252.
Lodge, M., Matus, K., 2014. Science, badgers, politics: advocacy coalitions and policy change in bovine tuberculosis policy in Britain. Policy Stud. J. 42 (3), 367–390.
Longhofer, W., Schofer, E., 2010. National and global origins of environmental association. Am. Sociol. Rev. 75 (4), 505–533.
MacDonald, D., 2008. Explaining the failure in Canadian climate policy. In: Compston, H., Bailey, I. (Eds.), Turning down the Heat: the Politics of Climate Policy in Affluent Democracies. Palgrave, New York, pp. 223–240.
McArthur, J.W., Werker, E., 2016. Developing countries and international organizations: introduction to the special issue. Rev. Int. Org. 11 (2), 155–169.
McCright, A., Dunlap, R., 2003. Defeating Kyoto: the conservative movement's impact on US climate policy. Soc. Probl. 50 (3), 348–373.
Meyer, J., Frank, D., Hironaka, A., Schofer, E., Tuma, N., 1997. The structuring of a world environmental regime, 1870–1990. Int. Org. 51 (4), 623–651.
Painter, J., Ashe, T., 2012. Cross-national comparison of the presence of climate scepticism in the print media in six countries, 2007–10. Environ. Res. Lett. 7 (4), 044005.
Purdon, M., 2015. Advancing comparative climate change politics: theory and method. Glob. Environ. Polit. 15 (3), 1–26.
Rabe, B.G., 2010. The aversion to direct cost imposition: selecting climate policy tools in the United States. Governance 23 (4), 583–608.
Rennkamp, B., Haunss, S., Wongsac, K., Ortegad, A., Casamadrid, E., 2017. Competing coalitions: the politics of renewable energy and fossil fuels in Mexico: south Africa and Thailand. Energy Res. Soc. Sci. 34, 214–223.
Roberts, J.T., Parks, B.C., 2007. A Climate of Injustice: Global Inequality, North-south Politics and Climate Policy. MIT Press, Cambridge MA.
Roberts, J.T., 2011. Multipolarity and the new world (dis)order: US hegemonic decline and the fragmentation of the global climate regime. Glob. Environ. Change 21 (3), 776–784.

Sabatier, P., Jenkins-Smith, H., 1988. An advocacy coalition model of policy change and the role of policy orientated learning therein. Policy Sci. 21 (2–3), 129–168.
Schäfer, M., Ivanova, A., Schmidt, A., 2014. What drives media attention for climate change? Explaining issue attention in Australian, German and Indian print media from 1996 to 2010. Int. Commun. Gazette 76 (2), 152–176.
Schmidt, A., Ivanova, A., Schäfer, M., 2013. Media attention for climate change around the world: a comparative analysis of newspaper coverage in 27 countries. Global Environ. Change 23 (5), 1233–1248.
Schofer, E., Hironaka, A., 2005. The effects of world society on environmental protection outcomes. Soc. Forces 84 (1), 25–47.
Sewell, G., 2005. Actors, coalitions and the framework convention on climate change. Thesis (Ph. D.). Massachusetts Institute of Technology, Dept. of Urban Studies and Planning.
Sodero, S., 2011. Policy in motion: reassembling carbon pricing policy development in the personal transport sector in British Columbia. J. Trans. Geogr. 19 (6), 1474–1481.
Stoddart, M., Tindall, D., Smith, J., Haluza-Delay, R., 2017a. Media access and political efficacy in the eco-politics of climate change: canadian national news and mediated policy networks. Environ. Commun. 11 (3), 386–400.
Stoddart, M., Ylä-Anttila, T., Tindall, D., 2017b. Media, politics, and climate change: the ASA task force report and beyond. Environ. Sociol.
Stoett, P., 2012. Global ecopolitics: crisis, governance and justice. University of Toronto Press, Toronto ON.
Viola, E., 2013. Transformations in Brazilian deforestation and climate policy since 2005. Theor. Inq. Law 14, 109–123.
Ylä-Anttila, T., Swarnakar, P., 2017. Crowding-in: how Indian civil society organizations began mobilizing around climate change. Brit. J. Sociol. 68 (2), 273–292.